NFI Norman Foster Institute
on Sustainable Cities

Programme

Programme

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Introduction by Norman Foster
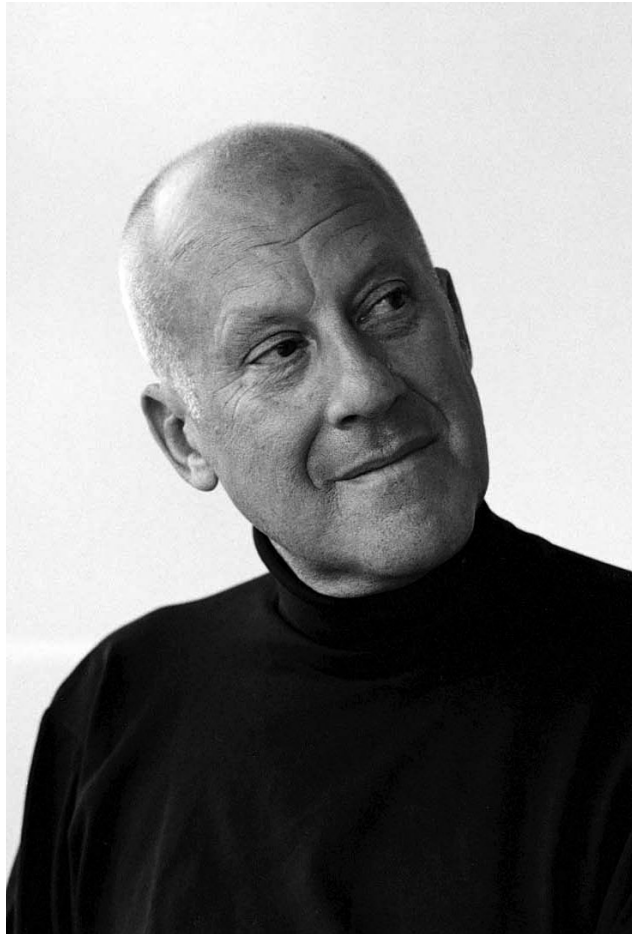
Norman Foster
President of the Norman Foster Foundation

The future of our society is the future of our cities—they are our greatest invention. This course, in a time of climate change, is addressed to those who wish, through practice or education, to improve the quality of life in cities worldwide. In that spirit, the course will combine practical on-site experience with academic inputs from the Norman Foster Foundation's network of international experts. These range from university professors and scientists to planners and property developers.

It will start with tools and skills that can be used to address wide-ranging issues for cities. For instance, leadership, advocacy, communication, presentation, diagramming, mapping, and the understanding and interpretation of data. This approach could be applicable to cities from Asia, the Middle East, South and North America to Africa, Europe and Oceania as well as informal settlements and suburbia.

The use of objective criteria is critical to evaluating the performance of cities and charting moves to improve their quality of life and reduce carbon footprints. There are many metrics in addition to the ones that have been created for this course. Notable are the Sustainable Development Goals (SDGs) developed by the United Nations (UN). Mindful of my role as Advocate of the UN Forum of Mayors, these SDGs will be linked into the curriculum.

However, there is one criterion that is subjective, defies quantification and therefore does not find its way into any of the metrics and that is the aesthetic dimension of a city—its visual DNA. This might be the colourful dynamic of an Asian city, the Renaissance order of a classical European city, the gridded verticality of Manhattan or the picturesque alleys and plazas of a city rooted in a mediaeval past. The identity of a city is also linked to its history. These issues will be addressed in the course.

A major part of the curriculum focuses on three pilot cities that scholars will visit to engage directly with their planners and managers. For study purposes, areas will be selected in each city to raise awareness of the issues that affect the quality of life for those who live or visit there. This small number of well-defined project assignments will be addressed by the scholars working on site and in the studio, either in teams or individually. In this multidisciplinary approach, the scholars will process evidence using the most up-to-date digital tools.

In this second edition of the course, the pilot cities will be African, although the methods will be adaptable to other kinds of cities worldwide. Towards the end of the year, the scholars will present their findings to the city administration and here there will be an emphasis on advocacy and presentation skills. The lessons from these real-life experiences will be documented by film and other media, culminating in a public event. On the basis that historically cities learn from each other, it will be important for the scholars to explore the relevance of their conclusions in the wider context of global cities.

This combination of the best of academia with practical hands-on experience in the field distinguishes this course from others. However, my Co-Director Kent Larson, Director of the City Science Group at the Massachusetts Institute of Technology (MIT), and I felt we should further set it apart by defining our criteria for a new model of the city—this could be shaping an existing city towards a more sustainable future or guiding the creation of a new urbanity. If this is the long-term objective, then the individual pilot projects would be incremental short-term steps towards the same eventual goal. Prof. Larson and I worked together to present that vision as the following Vision Statement.

Vision Statement

by Norman Foster and Kent Larson
NFI Co-Directors

What are the challenges?

The planet and human societies are undergoing seismic transformations, fuelled by the escalating threats of global warming, pervasive inequity, dwindling resources and rapidly changing economic conditions. Meeting these challenges requires a new model for cities.

What are the responses?

Cities must be at the centre of solutions to the most urgent problems facing our society, they are responsible for 90% of global wealth creation, 90% of population growth and 70% of global CO_2 emissions. The most recent Intergovernmental Panel on Climate Change (IPCC) report makes clear that developing urban transformation is key to addressing global warming:

> How cities and towns are designed, constructed, managed, and powered will lock-in behaviour, lifestyles, and future urban GHG emissions.

Climate scientists have established 2.5 tons of CO_2 /person/year as the global limit to have an 80% chance of limiting global warming to 2°C. While many cities in the global south have much lower emissions, cities in the developed world typically emit between 4 and 10 times this amount. Creating a new model for cities that helps achieve this ambitious goal while improving social and economic performance is the grand challenge of our era. Current practices in urban design, technology implementation and policymaking are not responding to this challenge.

What are the challenges for scholars?

In this course, scholars begin by reviewing the current environmental, social and economic conditions of their case-study community. They are challenged to identify the design, technology and public policies that can improve this performance, including the reduction of CO_2 emissions per person, and the increase in the quality of urban life, innovation potential, public health and other key issues.

What are the goals and aspirations?

The Programme on Sustainable Cities is based on the premise that the planet is becoming a network of cities, and the most successful cities will evolve into more liveable, entrepreneurial and resource-efficient communities:

Urban Programming and Design

- **Dense Compact Cities**. Compact cities are the most sustainable model in terms of energy consumption and carbon footprint compared to the auto-centric sprawling metropolis. They are also consistently rated, in terms of quality of life, as the most desirable places to live, work and visit.

- **Civic Core**. Successful cities and their network of neighbourhoods have civic cores, establishing their identity in terms of unique places, experiences, enterprises and cultural opportunities. These and other features collectively determine each place's characteristic DNA, which can be preserved and enhanced through well-considered design and planning.

- **Public Transit**. High-quality public transit is essential to link the networks of neighbourhoods comprising future cities. There is a strategic opportunity to explore public and private transportation opportunities such as emerging mass transit technologies ranging from bus rapid transit systems to platooned autonomous shuttles.

- **Live–Work Proximity**. Urban housing should be matched to jobs and available within convenient walking, active transport or public transportation commutes. The potential for achieving a live-work land-use balance should be assessed, given local constraints and opportunities, to understand how decreased car dependency could improve public health, access to equitable opportunities and the 24/7 exchange of ideas.

- **Proximity to Amenities**. Ideally, all of the amenities needed to support daily life should be within a 5–15-minute walk from places of living such as daily shopping, schools, healthcare, eating establishments, entertainment venues and cultural endeavours. Access to key amenities should be considered in the local context with the aim of reducing the need for mechanised transportation.

- **Proximity to Nature**. Living and workplaces should have access to green spaces. Preserving local ecosystems reinforces biodiversity, bolsters urban resilience and contributes to crucial environmental processes such as air purification and temperature regulation. The benefits ripple outwards, enriching the city's vitality while fostering active lifestyles, well-being and sustainability. Strategic environmental policies oriented to the application of pocket parks, green corridors and tree canopies can provide access to greenery without undermining population density or access to amenities.

- **Hyper-efficient Housing**. Providing high-quality, affordable housing matched to the needs of young professionals, the workforce, families, and others not served by the market is a high priority in many cities. Reducing the area required for new urban housing may be one effective strategy to reduce housing costs. New housing strategies can be explored, including architectural robotics for the dynamic transformation of space (i.e., from living to sleeping to socialising to working to exercising), which may increase affordability and reduce embodied and operational energy per person while increasing liveability and functionality.

- **High-performance Buildings**. Buildings are a significant proportion of a city's total emissions due to the energy consumed for heating, cooling, lighting and other building operations. Deep retrofitting of existing buildings and high-performance new buildings can help to reduce emissions while taking embodied energy and operational energy into account.

- **Lightweight Community-Scale Mobility**. In compact, walkable communities with live-work harmony and proximity to amenities, there is less need for local use of conventional automobiles, which are already in a state of transition. The many possible urban mobility modes can be re-evaluated in the context of different types of trips, including the use of cycling and ultra-light autonomous mobility-on-demand systems to improve service levels while reducing emissions.

Utilities and Production

- **High-Density Distributed Energy**. Fossil fuels can be offset with locally-produced distributed alternatives such as solar, wind and nuclear batteries; options include community-scale microgrids, energy storage systems and 'fusion-ready' cities.

- **Water and Sanitation**. The transition from centralised infrastructure to distributed sanitation and local production of clean water can reduce emissions in future cities. Water governance and management are key to the sustainable development of cities. These solutions may be particularly impactful for informal settlements in the Global South.

- **Food Production Near Consumption.** Industrialised agriculture has been extraordinarily effective at feeding the 8 billion people on the planet but could be combined with local production of certain high-value perishable food in or near cities. This would reduce emissions and improve the resilience of food supplies.

- **Goods Produced Near Consumption.** The COVID-19 pandemic revealed the fragility of global supply chains. Clean just-in-time manufacturing, such as 3D printing, micro-pharmaceutical production and automated digital weaving, can be deployed in cities to produce selected goods, reducing emissions and creating local job opportunities.

- **Relationship to the countryside.** Before the Industrial Revolution, cities were more readily supplied by the adjacent countryside with necessary food, energy, construction materials and consumables. Today, however, most cities rely on increasingly fragile global supply chains while the countryside is diminished by low-density sprawl and the destruction of natural ecosystems.

- **Clean Industries Zones.** New technologies allow for emerging clean industries to coexist harmoniously within the fabric of cities. This may alter the perception of industry as a polluting and environmentally damaging activity which, in the past, led to industrial and science parks being disconnected from the cities by default.

Pro-social Policies and Community Engagement

- **Pro-social Zoning**. Zoning regulations, developed in the early twentieth century, typically separate land uses by functions and promote low-density auto-centric sprawl. They are difficult to update as social, economic and technological conditions change. Dynamic and responsive planning alternatives for land-use rules should incentivise place-making and pro-social goals.

- **Innovation Districts**. With the transformation of work, conventional central business districts and office parks are becoming obsolete. Re-imagining the urban places that support evolving live-work patterns may reduce emissions and increase affordability, equity, creativity levels and the innovation potential of a community.

- **Leadership**. Positive urban transformation is most effective with strong, clear and enlightened leadership. The framing of challenges and the manner in which a vision for the future is communicated is of great importance for effective civic leadership.

- **Consensus**. Traditional community engagement processes often empower the loudest voices and discourage constructive conversations about complex issues. Evidence-based approaches can help communities reach a shared vision for the future.

- **Public Health**. Studies have shown that environments that promote physical activity such as walking, cycling and stairs may be the most effective means of preventing behaviour-related illnesses such as obesity, type-2 diabetes and congestive heart failure. These same solutions often simultaneously improve mental health. Community and infrastructure design can therefore proactively contribute to public health.

- **Safety and Security**. Particularly in cities in the Global South, improving safety and security is often cited as the most critical requirement to increase quality of life. Community design can improve the safety and security of residents in urban environments.

How can the performance of future communities be evaluated?

The process of evaluating the performance of future communities involves understanding current conditions, considering interventions that may improve these conditions and proposing scenarios to understand their impact on environmental, social and economic considerations. Factors of interest in modelling these considerations include:

- **Urban Infrastructure and Morphology.** This is the urban glue that binds together the individual structures in a city. It is the blocks of buildings, the boulevards, streets, public spaces, squares, parks, metros, terminals, bridges. The organisation of this physical infrastructure is linked to decisions on land use and determines the visual DNA of the city and its sense of identity. All of this is the outcome of conscious acts of planning. It can be the subject of modelling to create a digital twin to explore the dynamics of progressive change.

- **Human Dynamics.** Considering the flows of people and goods as well as economic activity and social interaction. This analysis can inform urban plans, infrastructure policy, land-use regulations, public services and economic initiatives.

- **Environmental Dynamics.** Modelling the distribution and access to energy, water and waste infrastructure, as well as implications for air pollution, noise levels and solar access. A focus on forms of intervention impacting embodied and operational CO_2 can contribute to local climate action plans and environmental preservation efforts.

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About the Norman Foster Institute

The creation of the Norman Foster Institute (NFI) follows the Norman Foster Foundation's (NFF) programme of workshops, think tanks, debates, masterclasses and various research initiatives, which have been running since its launch in 2017, bringing together experts from academia, practice and consulting to engage with top graduates from around the world.

The NFI Academic Programmes are linked to the Sustainable Development Goals (SDGs) of the United Nations, which has recognised the NFF as Centre of Excellence.

The first NFI initiative is a one-year Programme on Sustainable Cities, created in collaboration with the Universidad Autónoma de Madrid. Time is divided between lectures, research and on-site experience within selected areas and with city planners and administrators.

- *Learning.* Scholars train using advanced tools that are applicable to diverse types of global cities.

- *Network.* Scholars engage with the Norman Foster Foundation's global network of experts, practitioners, civic leaders and alumni. This will present long-term opportunities for further research and work.

- *On-site experience.* The 2025 academic year will focus on African cities, one of the most challenging territories that also presents one of the greatest opportunities for urban development.

Location

NFI Academic Hub
Calle del Monte Esquinza 48, 28010, Madrid, Spain

NFI City Lab
Calle de Zurbarán 15, 28010, Madrid, Spain

Aimed at

This programme is intended for those who seek a holistic approach to the design and management of cities.

It is open to all graduate and postgraduate scholars, as well as professionals in the fields of Anthropology, Architecture, Arts, Computer Science, Construction, Data Analytics, Design, Economics, Engineering, Environment, Geography, History, Law, Mathematics, Public Policy, Sociology, Transportation, Urbanism and other related disciplines.
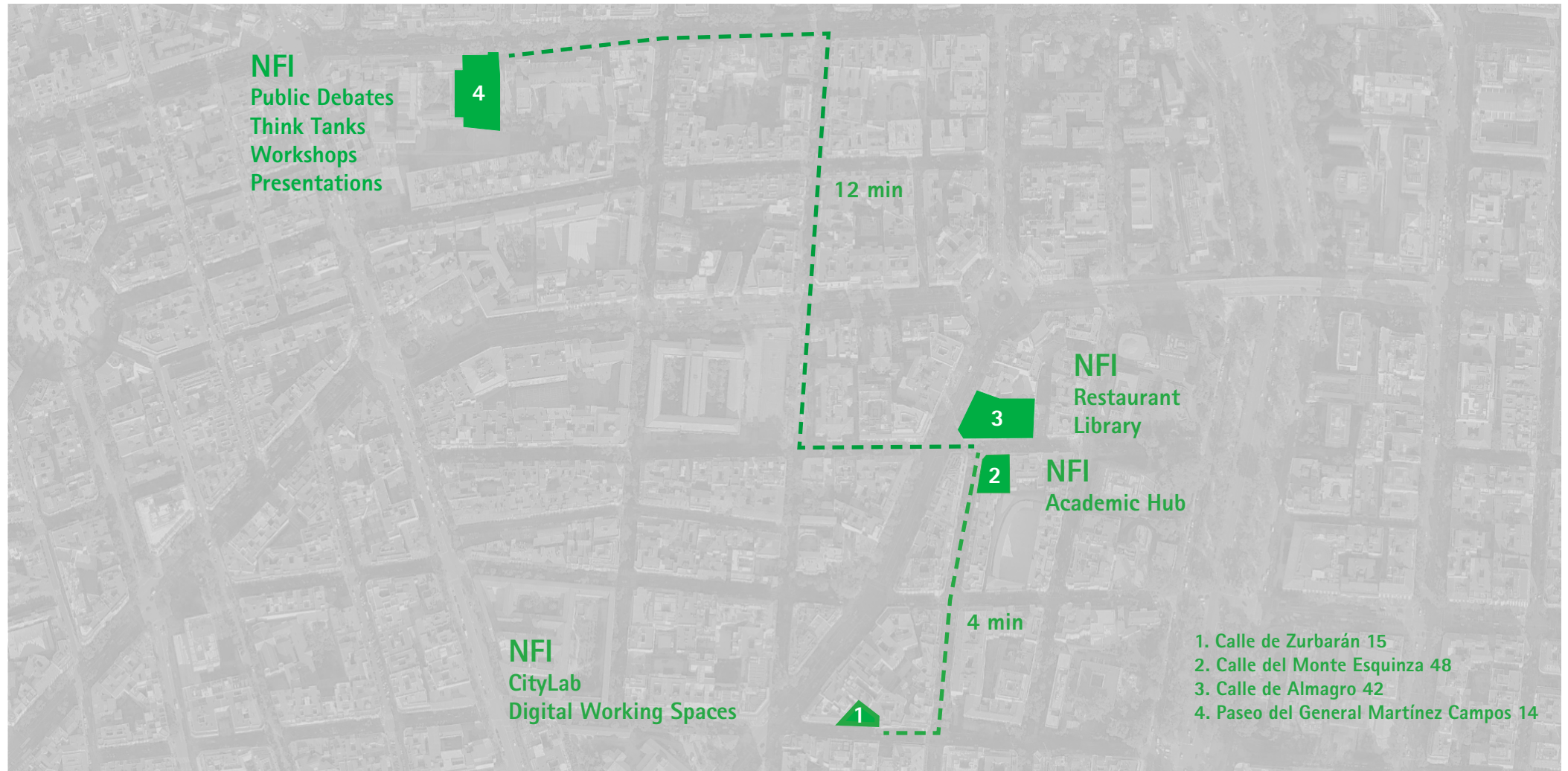
International Certification

The NFI provides a certificate of completion for the Programme on Sustainable Cities, signed by the Co-Directors Norman Foster, President of the Norman Foster Foundation and Advocate of the United Nations Forum of Mayors, and Kent Larson, Director of the City Science Group at the Massachusetts Institute of Technology (MIT) Media Lab.

Scholarships

The NFI awards partial and full scholarships to talented applicants in need of financial support, based on merit, distinctive competencies, background and/or academic excellence.

Programme Essentials

Language
English

Mode of Study
Full time

Campus
Madrid, Spain

Format
In person

Length
1 year

Dates
Jan-Dec 2025

The Norman Foster Institute Campus

NFI
Public Debates
Think Tanks
Workshops
Presentations

4

12 min

NFI
Restaurant
Library

3

2

NFI
Academic Hub

4 min

NFI
CityLab
Digital Working Spaces

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1. Calle de Zurbarán 15
2. Calle del Monte Esquinza 48
3. Calle de Almagro 42
4. Paseo del General Martínez Campos 14

The Norman Foster Institute (NFI) Campus is located in an urban setting in the Madrilenian area of Chamberí. Its main activities are located in four iconic buildings at a walking distance from each other. The Headquarters of the NFF hosts the NFI Academic Hub. The public events of the NFI take place at Paseo del General Martínez Campos, 14.

The scholars' restaurant for lunch and library for quiet study are located at the Colegio de Ingenieros de Caminos, Canales y Puertos. The NFI CityLab features cutting-edge digital tools and working areas. Additionally, students have access to the multiple sports facilities and other amenities of the Universidad Autónoma de Madrid, which has developed the NFI Master on Sustainable Cities and offers the official certification.
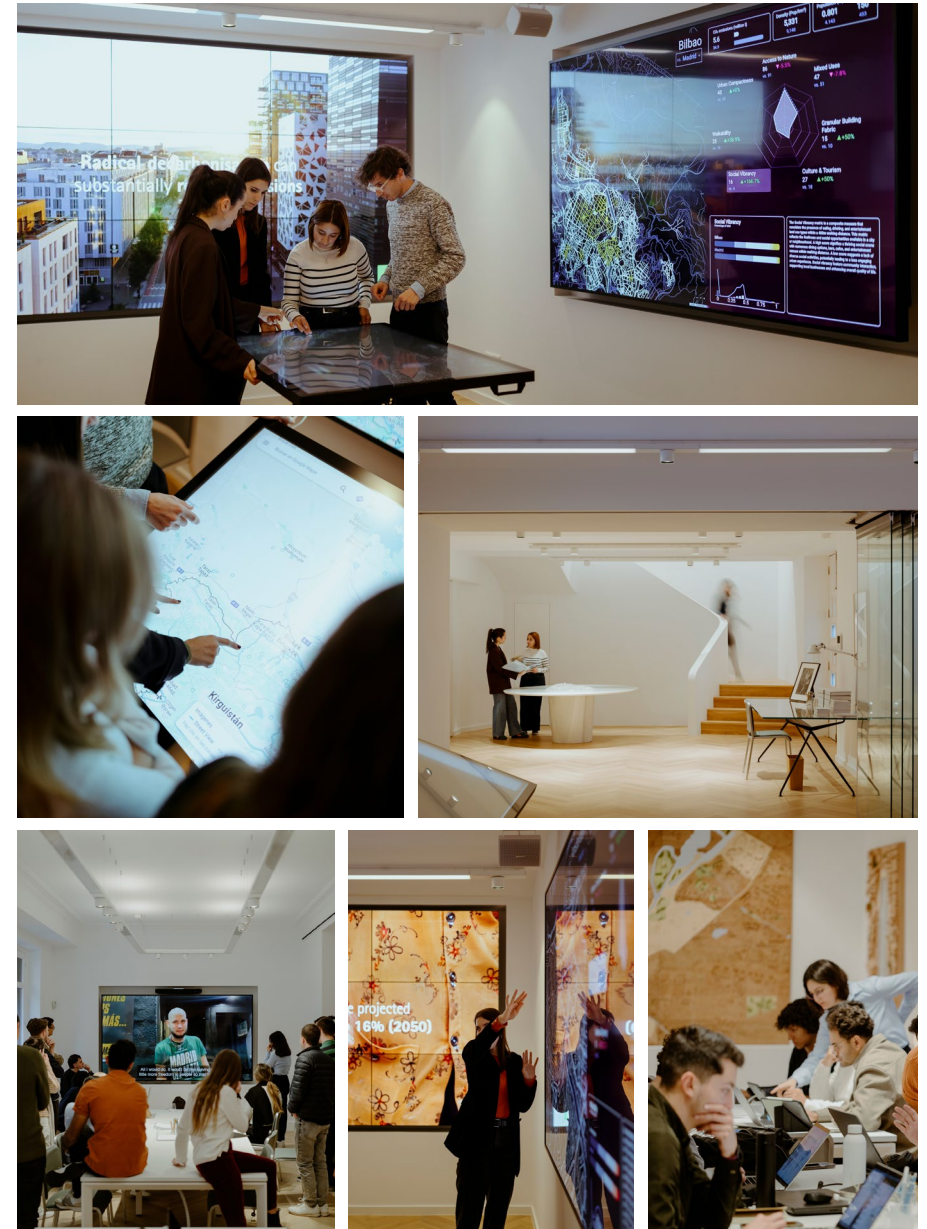
NFI Academic Hub
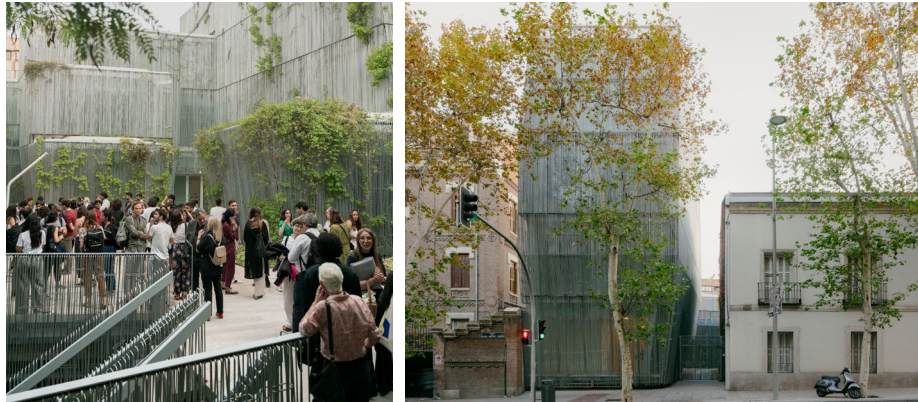
Calle del Monte Esquinza 48, 28010, Madrid, Spain

NFI City Lab

Calle de Zurbarán 15, 28010, Madrid, Spain

NFI Public Events Space

Paseo del General Martínez Campos 14, 28010, Madrid, Spain

NFI | UAM Sports Campus

Calle de Freud 9, 28049, Madrid, Spain

03

Programme Summary

Programme Summary

36 weeks

Stage I **Foundations** 4 weeks	A global, in-depth study of the history, governance, ethics and metrics of sustainability in cities.

Stage II **Transformations** 14 weeks	A vision of transformation challenges and opportunities for sustainable cities.

- **Transformation Challenges**

  The scholars identify key transformation challenges for the pilot cities.

- **Pilot City Engagement**

  The scholars visit the pilot cities and workshop with the city representatives.

Stage III **Interventions** 18 weeks	A project-based testing of implementation strategies adapted to the selected areas.

- **Project Development**

  Scholars develop proposals for interventions and test their implementation through technical workshops with experts.

- **Final Presentations & Film Screening**

  Presentation of the students' proposals to the cities' mayors and representatives.

Objectives

The Programme on Sustainable Cities is mindful of the premise that the planet is becoming a network of cities, and the most successful cities will evolve into more liveable, entrepreneurial and resource-efficient communities. The primary focus is to train scholars from different disciplines in the sustainable development of cities with effective strategies for the future. Scholars explore how to:

- Understand methods for gauging the environmental, social and economic performance of a city.
- Study the history of different kinds of cities, including informal settlements and suburbia.
- Know mechanisms for governance and transformation of communities.
- Lay out clear environmental strategies to tackle climate change impact, mindful of the goal of 2.5 tons of CO_2 emissions per person per year in cities.
- Incorporate the Sustainable Development Goals (SDGs) into local sustainability and climate action plans.
- Identify the designs, technologies and public policies that can dramatically improve cities.
- Explore challenges and opportunities addressing density, walkability, mobility, diversity, affordability and social equity issues.
- Experience hands-on fieldwork and community engagement.
- Propose urban strategies focusing on the neighbourhood scale.
- Foster improvements to the quality of life, public health and biodiversity.
- Develop communication, presentation, leadership and advocacy skills.
- Use evidence-based methods to test implementation strategies.
- Combine human-centred and data-driven design in projects and relate them to a global context.

Structure

The 36-week programme consists of three stages—*Foundations*, *Transformations* and *Interventions*, with time divided between classrooms, cities and studios.

- *Foundations* consists of an in-depth study of the concepts and processes necessary to understand a city, from history and governance to the ethics and metrics that define sustainable cities. Special emphasis is placed on understanding the 'importance of a place', building upon concepts such as 'townscape/cityscape' as well as different strategies of urban space making.

- *Transformations* provides an understanding of the challenges and opportunities for transformation in each city. It studies six of the layers at which a city could be defined: Climate & Natural Environments, Networks & Mobility, Planning & Building, Resources & Energy, Economy & Social Activity and Culture & the Arts.

- *Interventions* enables ideas that reduce embodied and operational emissions to improve public health and create a new vision for communities. This stage is dedicated to testing a range of strategies for sustainable improvement in each field for the selected areas.

The NFI City Lab

As part of its programme, the NFI has an innovative laboratory to support the scholars in the creation of their strategies for the pilot cities. The NFI City Lab encourages the use of data-supported and evidence-based design methods to assist the scholars in exploring and evaluating their proposed interventions. It is furnished with large format displays, touch tables, and an assortment of digital equipment to equip the scholars with tools for creatively and collaboratively discussing and presenting their work. The lab promotes the use of emerging data modelling and visualisation techniques and supports the use and development of open-source urban analytical toolsets. The NFI City Lab is lead by experts from the Massachusetts Institute of Technology (MIT), University College London (UCL) and the NFF Education and Research Unit.

Data, Models and Outcomes

The NFI City Lab uses a combination of open-source data and city-provided datasets to create tailored programmes for each of the pilot cities. These data sources are mapped and metrics identified for critical transformation layers, becoming the canvas on which scholars can paint their visions for sustainable urban futures. Starting with city-specific themes and areas of interest—defined in consultation with the cities—the scholars identify context-appropriate sustainability indicators. The lab then guides the scholars in developing analytical and visualisation workflows to evaluate their proposed interventions and frame actionable strategies for improvement. This experience empowers scholars through the learning of transferable skills, thereby encouraging wider adoption of these methods in design and planning endeavours beyond the end of the course.

City Pulse

One of the first tools being developed by the NFI City Lab is City Pulse: an urban data exploration interface built from open data sources and toolsets. With City Pulse, scholars can investigate openly measurable characteristics of a sustainable city, gaining deeper location specific insights of the pilot cities and facilitating discussions on potential strategies and areas of focus.

Becoming a Consulting Entity for Cities

Beyond academia, the NFI City Lab aspires to become a trusted consulting entity for cities around the world. The urban analytics workflows and toolsets, which will continuously grow alongside the work of the Institute, benefit not only the scholars but also the cities, policymakers, and urban enthusiasts seeking sustainable solutions. By bridging the gap between data, innovation and urban governance, the NFI aims to empower cities to make informed decisions, enhance their resilience, and build greener, more sustainable futures.

04

Structure

Stage I – Foundations

Introductory Week + 3 Weeks

The first four weeks of the programme consist of an in-depth study of the concepts and processes necessary to understand a city. Through seminars by experts followed by brainstorming and round-table debate with the academic body on relevant themes and pilot cities, scholars engage with the foundations of a city.

Skills Courses

Each week there are classes that teach the methods that students need to address the topic of the week. The three skills courses that are given throughout this stage are:

Sustainable Policies Framework	Historical Research Methods	Leadership Skills
Sustainable Development Goals Green building standards EU taxonomy	Archives and sources Cartography Global history	Governance Ethical boundaries Participatory processes

- Opening and programme breakdown.
- Keynote lectures.
- Pilot cities introduction and assignment.

Introduction

The opening week is be devoted to an introduction to the programme with keynote lectures from the Co-Directors and Academic Council. Scholars are introduced to and trained in leadership, advocacy, communication and presentation skills. They are assigned to their cities and groups, and begin documentation of the programme through film and other media.

- Climate change law framework.
- Sustainable Development Goals.
- Urbanisation and sustainable urban development at the local, national and global level.
- Urban metrics, data-driven measurements.

Sustainability & Frameworks

Scholars are introduced to the criteria of sustainability and develop a critical perspective on sustainable frameworks and acquire a more nuanced approach to them. In this block, they identify the characteristics of diverse kinds of cities and debate global urbanisation in a time of climate change.

- Global history of cities and planning.
- Post-colonial perspective on urban morphology.
- Ecological impacts and technology in urban history.
- Cities, health and pandemics through history.

History & Technology

Scholars gain awareness of the history and diversity of urban settlements across different continents. They learn how to read both old and contemporary cartography to be able to assess urban heritage policies and practices.

- Public policies.
- City management.
- Informal settlements overview.
- Civil rights and discrimination.

Governance & Ethics

This section starts with a comprehensive study of the role of public policies, private interests and city management from an ethical perspective. The role of politics is examined in issues of equality, especially related to the provision and distribution of affordable housing. The issue of informal settlements is covered—their evolution and strategies for their transformation. For broad application, specialist contributors explore the processes of consultation in a bottom-up approach compared with traditional models from the past.

Stage II – Transformations

12 Weeks + 2 Weeks of Visits

The second stage of the programme lasts for 12 weeks and is devoted to the layers of transformations of the city, essential skills and project development work. This stage culminates with preparation and visits to the cities with a focus on the scale of the neighbourhood. Scholars study and debate these issues to create a small number of well-defined project assignments in the form of Challenges and Opportunities for selected areas in each city.

Skills Courses

Throughout Stage II, skills courses teach technical skills that scholars need to develop their future projects. The three skills courses that are given throughout this stage for twelve consecutive weeks are:

Urban Analytics I	Research & Communication	Innovation & Entrepreneurship
QGIS	Research methodologies & ethics	Business models
Python	Archives & sources	Fundraising
Data preparation	Dissemination & publishing	Feasibility & benchmarks
Data modelling	Presenting	Scaling up
Urban metrics	Mapping theory & graphics	Incubators & accelerators

Seminars present 6 key layers, each has a duration of two weeks, and the scholars identify key transformation challenges for the pilot cities.

- **Climate & Natural Environments:** topics address issues of climatology, ecosystems, water, and environmental politics to set frameworks on climate, topography, vegetation/green spaces, carbon footprint and living systems.

- **Networks & Mobility:** topics address issues around the complexity and balance of systems of transportation, mobility, and human behaviour patterns in urban areas to open discussion on matters such as hubs, public/private transport, lightweight mobility and walkability.

- **Planning & Buildings:** topics address issues of bottom-up development, housing, industry, health, and regenerative architecture in order to focus on master plans, density, mix of uses, affordability, high-performance buildings, townscape and place-making.

- **Resources & Energy:** topics address issues of energy, water governance, circular economy, and food production in order to introduce subjects such as grids, recycling & upcycling, alternative energy sources, waste management and sanitation.

- **Culture & the Arts:** topics address issues of public art, art in the city, arts and the sciences and art communities in order to challenge matters of tourism, historic neighbourhoods, and digitisation.

- **Economy & Social Activity:** topics address issues of urban economics, politics, demographics and catalytic communities and social services in order to tackle questions of equality, diversity, circular economy, innovation, and interest groups.

Pilot City Engagement

Field work plays a central role in the project development, overcoming distances between planning and site, proposal and inhabitants, intervention and stakeholders. Field trips include:

- Transformations, challenges, presentation and feedback.
- First-hand experience and fieldwork—the neighbourhood—observing, walking, interviewing, recording, collecting and filming.
- Community engagement and development of outreach skills.
- Identification of areas to study and create improvements.

Stage III – Interventions

12 Weeks + 6 weeks of Project Development

The third stage of the programme focuses on the development of project proposals for selected areas and testing strategies for improvement through hands-on technical workshops and skills courses. The performance of the proposals is evaluated through three main factors of interest: Urban Infrastructure and Morphology, Human Dynamics and Environmental Dynamics. Focusing on tangible solutions for the issues studied in the previous stage, the scholars develop, test and benchmark the impact of their proposals to stimulate wider debate. **Interventions** are categorised as Urban Programming and Design, Utilities and Production, Pro-social Policies & Community Engagement, with corresponding **Workshops** for application (each with a duration of 2 weeks), resulting in concrete **Actions** to guide the work.

Skills Courses

Stage III courses target technical skills and tools that scholars use to develop and test their project proposals. The three skills courses that are given throughout this stage for twelve consecutive weeks are:

Urban Analytics II	Leadership & Project Planning	Engagement & Outreach
Network analysis	Team management	Stakeholder outreach
Statistical aggregations	Risk taking and decision making	Public participation
Data mining	Collaborative project planning	Crowdfunding
Data visualisation	Agile project development	Social media management
Evidence-based workflows		Marketing and promotion

Interventions	Workshops	Actions
Urban Programming and Healthy Design	**Climate Analysis & Nature-based Solutions**: Urban microclimates, thermal comfort, extreme weather events, and flooding. Nature-based solutions, green building frameworks, and biodiversity analyses. **Networks, Graphs & Transport**: Street networks, walkability, and land use accessibility. Space syntax methods and agent-based models. **Computational Planning & Land-use**: Evidence-based urban design workflows. Methods for the evaluation of the performance of neighbourhoods and buildings.	Dense Compact Cities Civic Core Live-work Proximity Proximity to Amenities Proximity to Nature Hyper-efficient Housing High-performance Buildings Public Transit Lightweight Community-Scale Mobility
Utilities and Production	**Energy Models & Life-cycle Analysis**: Urban energy models and emissions, utility grids and district frameworks. Life-cycle analysis, water & waste management, circular economy models.	High-Density Distributed Energy Water and Sanitation Food produced near consumption Goods produced near consumption Relationship to the countryside Clean Industries Zones
Pro-social Policies & Community Engagement	**Media & Engagement**: Interactive spaces, urban art interventions, large-scale installations and inclusive art, as well as mixed-reality models and metaverse discourses. **Socio-economic & Demographic Models**: Socio-economic models, spatial growth, spatial economics, attractiveness calculators. Spatial welfare, spatial justice, models of diversity and inclusion.	Pro-social zoning Innovation Districts Leadership Consensus Public Health Safety & Security

Project Development

Work thrives from technical workshops oriented towards testing the proposed strategies for sustainable improvement in each layer in order to subsequently agree on a strategy to be implemented in each of the selected areas. Scholars present their projects to the Mayors or civic leaders representing the 3 selected cities.

Governance

The Norman Foster Institute is part of the Norman Foster Foundation.

Academic Partners

NFF Norman Foster Foundation   **UAM** Universidad Autónoma de Madrid   **UNECE** Centre of Excellence on Sustainable Housing

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